

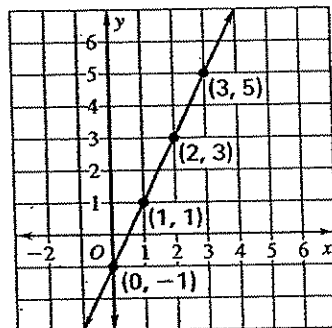
# ALGEBRA

# STUDY GUIDE!!

## Multiple Choice

- Which expression represents "the difference of 15 and a number"?  
 (A)  $15 - x$  (B)  $x - 15$   
 (C)  $\frac{15}{x}$  (D)  $\frac{x}{15}$
- An airplane travels at 150 miles per hour. The number of hours at that rate is  $h$ . What is an expression for the number of miles traveled?  
 (F)  $h + 150$  (G)  $h - 150$   
 (H)  $150h$  (I)  $\frac{h}{150}$
- What is the solution of  $27 = 18 + x$ ?  
 (A) 7 (B) 9 (C) 14 (D) 45
- Solve  $x - 13 = 34$ .  
 (F) 3 (G) 11 (H) 21 (I) 47
- Which equation does not have 4 as a solution?  
 (A)  $y + 8 = 12$  (B)  $6y = 24$   
 (C)  $15 = y + 11$  (D)  $\frac{y}{8} = 32$
- Solve the equation  $16x = 64$ .  
 (F) 4 (G) 6 (H) 32 (I) 48
- What is the solution of  $\frac{w}{45} = 9$ ?  
 (A) 5 (B) 36 (C) 54 (D) 405
- A wild turkey walks 3 miles in an hour. If it keeps walking at the same rate, which equation can you use to find the time it takes the turkey to walk 21 miles?  
 (F)  $h + 3 = 21$  (G)  $\frac{h}{3} = 21$   
 (H)  $3h = 21$  (I)  $21 - h = 3$

- What is the output of the function rule  $y = 4x - 3$  when the input  $x$  is 6?  
 (A) 7 (B) 12 (C) 21 (D) 43
- Which function rule has the following graph?



- (F)  $y = x + 2$  (G)  $y = 2x - 1$   
 (H)  $y = \frac{1}{2}x + 2$  (I)  $y = 2x + 1$

## Short Response

- Write and solve a subtraction equation for the situation: After spending \$37, Dana had \$71 left. Explain the meaning of the solution.

## Extended Response

- Make an input-output table for converting inches  $i$  to feet  $f$  using the input values  $i = 12, 24$ , and  $36$ . Make an input-output table for converting yards  $y$  to feet  $f$  using the input values  $y = 1, 2$ , and  $3$ . Write a function rule for each conversion.

Handwritten work for Question 12:

For inches to feet:  $f = \frac{i}{12}$

inches ( $i$ )	feet ( $f$ )
12	1
24	2
36	3

For yards to feet:  $f = 3y$

yards ( $y$ )	feet ( $f$ )
1	3
2	6
3	9

Additional handwritten notes include:  $12 \div 12 = 1$ ,  $24 \div 12 = 2$ ,  $36 \div 12 = 3$ ,  $1 \times 3 = 3$ ,  $2 \times 3 = 6$ ,  $3 \times 3 = 9$ .

Write the phrase as an expression. Let  $x$  represent the number.

1. A number increased by 25
2. 15 subtracted from a number
3. The quotient of 36 and a number

Write the sentence as an equation. Let  $y$  represent the number.

4. Thirty-two minus a number is 18.
5. The product of a number and 8 is 72.
6. A number increased by 13 is 24.

Solve the equation.

7.  $a + 7 = 19$
8.  $15 + b = 21$
9.  $17 + c = 28$
10.  $d - 12 = 18$
11.  $e - 8 = 14$
12.  $f - 14 = 21$

13. You studied 16 hours this week, which is 7 hours more than you studied last week. Write an addition equation you could use to find the number of hours  $h$  you studied last week.

Answers

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_

Solve the equation.

1.  $6a = 42$
2.  $48 = 12b$
3.  $13c = 0$
4.  $\frac{d}{9} = 7$
5.  $\frac{e}{10} = 80$
6.  $6 = \frac{f}{12}$

Write the sentence as an equation. Then solve the equation.

7. 132 is 11 times a number  $x$ .
8. Nine times a number  $y$  is 36.
9. Three is equal to a number  $z$  divided by 13.
10. Write a function rule for the input-output table.

rolls of film $r$	pictures $p$
1	27
2	54
3	81
4	108

Answers

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. See left.
12. See left.

Complete the input-output table using the function rule and the input values  $x = 2, 3, 5$ , and 7. Graph the function.

11.  $y = 3x$

12.  $y = 15 - x$

input $x$	output $y$

input $x$	output $y$

13) Graph  $-3x + 2 \leq 23$